

# Chromalox®

## Installation Instructions and RENEWAL PARTS IDENTIFICATION

### SERVICE REFERENCE

|                 |                              |
|-----------------|------------------------------|
| DIVISION 4      | SECTION VUH                  |
| SALES REFERENCE | (Supersedes PF450-4) PF450-5 |
|                 | 161-057822-001               |
| DATE            | JULY, 2002                   |

## VUH Vertical Unit Heater

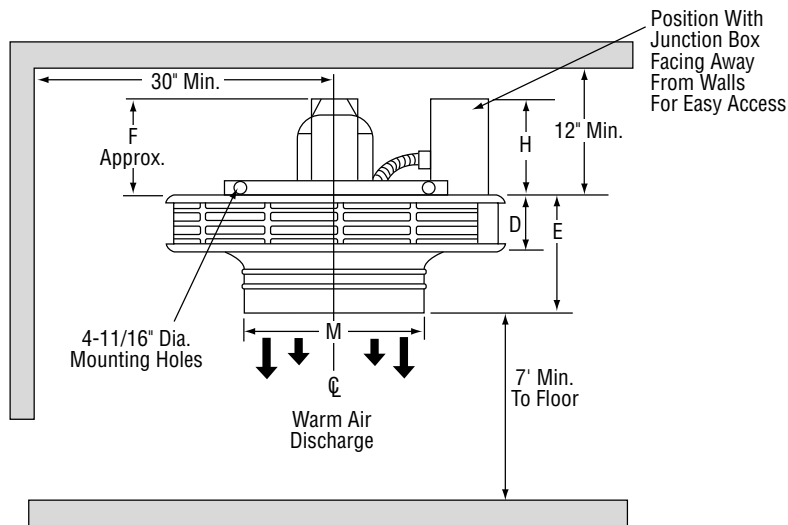
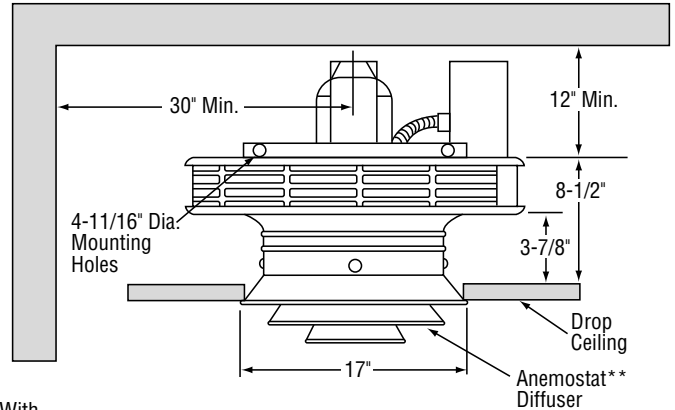


Figure 1

Figure 2

Specifications — Table 1

| Model    | Heating Capacity |        | Volts             |                   | Air Delivery Data |      |                  | Max. Mtg. Height (Ft.) | Dimensions (In.) |        |    |       |       |   |       |        | Mtg. Weight (Lbs.) |
|----------|------------------|--------|-------------------|-------------------|-------------------|------|------------------|------------------------|------------------|--------|----|-------|-------|---|-------|--------|--------------------|
|          | kW               | BTUH   | 1 Phase           | 3 Phase           | CFM               | FPM  | Outlet Temp. °F* |                        | A                | B      | C  | D     | E     | F | H     | M      |                    |
| VUH-C-05 | 5                | 17,000 | 208<br>240<br>277 | 208<br>240<br>480 | 450               | 703  | 102              | 10                     | 14               | 13-1/2 | 26 | 3-1/4 | 6-5/8 | 4 | 7-1/4 | 10-5/8 | 48                 |
| VUH-C-07 | 7.5              | 25,500 | 208<br>240<br>277 | 208<br>240<br>480 | 550               | 880  | 102              | 12                     | 14               | 13-1/2 | 26 | 3-1/4 | 6-5/8 | 4 | 7-1/4 | 10-5/8 | 48                 |
| VUH-C-10 | 9.8              | 34,000 | 208               | 208               | 712               | 1160 | 104              | 14                     | 14               | 13-1/2 | 26 | 3-1/4 | 6-5/8 | 4 | 7-1/4 | 10-5/8 | 48                 |
|          | 10               |        | 240<br>277        | 240<br>480        |                   |      |                  |                        |                  |        |    |       |       |   |       |        |                    |

\* Based on 60°F entering air.

\*\* For use with drop ceiling only. Installation in a drop ceiling should be in accordance with NFPA-90A and Article 300-22 of (NEC).

\*\*\* For instructions on VUH units rated 15-25 kW refer to Bulletin PF451; VUH units rated 30-50 refer to Bulletin PF452.

Table 2 - Electrical Data

| Model    | Power Supply Circuit |       |       |                       |                            |              |                           | Contactor Holding Coil<br>Volt Amperes<br>(Note 3) |        | Motor   |      |       |
|----------|----------------------|-------|-------|-----------------------|----------------------------|--------------|---------------------------|----------------------------------------------------|--------|---------|------|-------|
|          | kW                   | Volts | Phase | Line Amps<br>(Note 1) | Line Wire Size<br>(Note 2) | No. Circuits | Minimum Conduit<br>Size † |                                                    |        |         |      |       |
|          |                      |       |       |                       |                            |              |                           | Inrush                                             | Sealed | Volts   | H.P. | Phase |
| VUH-C-05 | 5                    | 208   | 1     | 25                    | 8                          | 1            | 3/4"                      | 60                                                 | 9      | 208/240 | 1/25 | 1     |
|          |                      | 208   | 3     | 15                    | 12                         | 1            | 1/2"                      |                                                    |        | 280/240 |      |       |
|          |                      | 240   | 1     | 22                    | 10                         | 1            | 1/2"                      |                                                    |        | 208/240 |      |       |
|          |                      | 240   | 3     | 13                    | 12                         | 1            | 1/2"                      |                                                    |        | 208/240 |      |       |
|          |                      | 277   | 1     | 19                    | 10                         | 1            | 1/2"                      |                                                    |        | 277     |      |       |
|          |                      | 480   | 3     | 7                     | 14                         | 1            | 1/2"                      |                                                    |        | 480     |      |       |
| VUH-C-07 | 7.5                  | 208   | 1     | 37                    | 6                          | 1            | 3/4"                      | 60                                                 | 9      | 208/240 | 1/25 | 1     |
|          |                      | 208   | 3     | 22                    | 10                         | 1            | 1/2"                      |                                                    |        | 208/240 |      |       |
|          |                      | 240   | 1     | 32                    | 8                          | 1            | 3/4"                      |                                                    |        | 208/240 |      |       |
|          |                      | 240   | 3     | 19                    | 10                         | 1            | 1/2"                      |                                                    |        | 208/240 |      |       |
|          |                      | 277   | 1     | 28                    | 8                          | 1            | 3/4"                      |                                                    |        | 277     |      |       |
|          |                      | 480   | 3     | 10                    | 14                         | 1            | 1/2"                      |                                                    |        | 480     |      |       |
| VUH-C-10 | 9.8                  | 208   | 1     | 48                    | 6                          | 1            | 3/4"                      | 60                                                 | 9      | 208/240 | 1/25 | 1     |
|          |                      | 208   | 3     | 29                    | 8                          | 1            | 3/4"                      |                                                    |        | 208/240 |      |       |
|          | 10                   | 240   | 1     | 43                    | 6                          | 1            | 3/4"                      |                                                    |        | 208/240 |      |       |
|          |                      | 240   | 3     | 25                    | 8                          | 1            | 3/4"                      |                                                    |        | 208/240 |      |       |
|          |                      | 277   | 1     | 37                    | 6                          | 1            | 3/4"                      |                                                    |        | 277     |      |       |
|          |                      | 480   | 3     | 13                    | 12                         | 1            | 1/2"                      |                                                    |        | 480     |      |       |

**Notes:**

1. Includes Fan Motor Amps.
2. Use 75°C Wire - Copper Conductors only.

3. Standard units have one contactor. Units with separate fan motor control use two contactors.

† Conduit knockout location - top of Junction Box.

## IMPORTANT

Failure to understand and follow these installation instructions and the “WARNING” notes therein may result in serious personal injury from electrical shock, or from the heater falling due to faulty installation.

### ⚠ WARNING

**FIRE/EXPLOSION HAZARD. This heater is not intended for use in hazardous atmospheres where flammable vapors, gases, liquids or other combustible atmospheres are present as defined in the National Electrical Code. Failure to comply can result in personal injury or property damage.**

### ⚠ WARNING

**ELECTRIC SHOCK HAZARD. Disconnect all power before installing or servicing heater. Failure to do so could result in personal injury or property damage. Heater must be installed by a qualified per-**

**sonal in accordance with the National Electrical Code, NFPA 70.**

The heater must be mounted at least 7' above the floor to prevent accidental contact with the heating elements or fan blade which could cause injury.

The ceiling structure, the brackets, hangers or chains used to suspend the heater, and the anchoring provisions must be of sufficient strength to support the combined weight of the heater installation (48 pounds for VUH-C-05, 07, 10 plus the weight of the supports).

Prior to operating the heater verify that the fan hub setscrews are tightened and the push-on clip is secured to assure that the fan blade is securely fastened to the motor shaft.

On models connected to three-phase power, fan blade rotation must be checked. If airflow is not downward, interchange any two of the three customer power leads.

First stage of thermostat must be connected to terminals C1 and C2 to insure proper operation of overheat protective devices.

## INSTALLATION

### ⚠ WARNING

**ELECTRIC SHOCK HAZARD. Any installation involving electric heaters must be performed by a qualified person and must be effectively grounded in accordance with the National Electrical Code to eliminate shock hazard.**

1. Heater should be positioned with the junction box facing away from walls to provide easy access for servicing relay(s) mounted within. See Figure 1.

### ⚠ WARNING

**Mount the heater for down discharge only. Failure to comply may result in personal injury or property damage.**

2. It is important that the 12" minimum dimension shown in Figure 1 be maintained to make it possible for a serviceman to remove the fan motor, if necessary, without moving the heater from its mounting.

### ⚠ WARNING

**The heater must be mounted at least 7' above the floor to prevent accidental contact with the heating elements or fan blade which could cause personal injury.**

The ceiling structure, the brackets, hangers or chains used to suspend the heater and the anchoring provisions must be of sufficient strength to support the total weight of the heater installation (48 pounds for VUH-C-05, 07, 10 plus the weight of the supports).

3. The heater to be mounted to the ceiling by attaching rigid angle brackets, hangers, or chains to the four mounting holes on the top of the heater case using four 5/8" bolts (by others). See Figures 1 and 2.

**Note:** Brackets, hangers, or chains to support the heater are supplied by the customer.

4. All wiring should be done in accordance with local codes and the National Electrical Code by a qualified person.

## MAINTENANCE

5. Rough-in wiring to heater. See Table 2 for line amperes, recommended wire size and conduit size.
6. Wire heater per wiring diagram supplied with this instruction sheet.

**Note:** Power relay(s) are provided as standard on all heaters.

### ⚠ WARNING

**Prior to operating the heater, verify that the fan hub setscrews are tightened and the push-on clip is secured to assure that the fan blade is securely fastened to the motor shaft. Failure to comply could result in personal injury or property damage.**

7. Carefully inspect the completed installation. Rotate the fan blade by hand to be sure that it turns freely. Investigate any binding, rubbing or interference.

8. Air diffusers for deflecting the air are optional. See Instruction Sheet PF449 for installation instructions.

### ⚠ WARNING

**ELECTRIC SHOCK HAZARD. Disconnect all power to heater before servicing or replacing heaters. Do not attempt to service heater while unit is operating as there is hazard of electric shock, injury from operating fan, and burns from hot heating elements.**

1. Before activating for next heating season, vacuum or use compressed air to remove accumulated dust or lint, which otherwise may restrict proper air flow.
2. Periodically check all electrical connections and retighten to avoid electrical wiring difficulties.

## WIRING DIAGRAMS

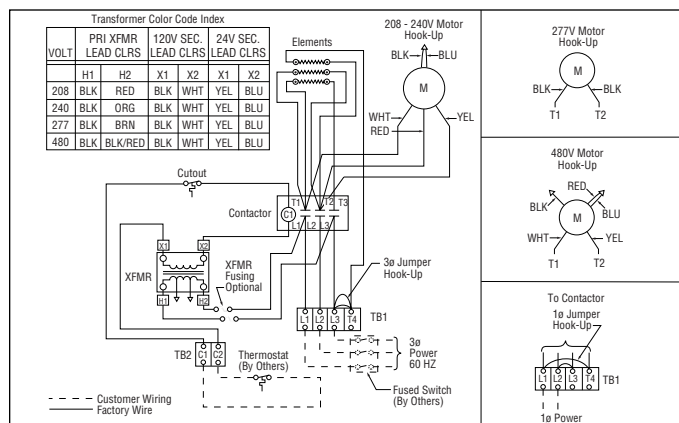


Figure 3

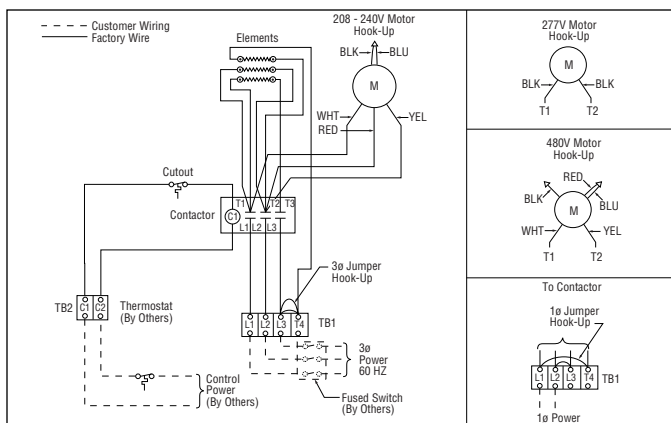


Figure 4

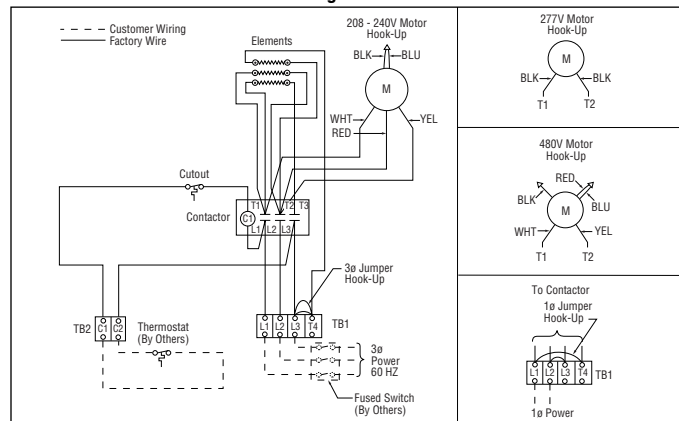


Figure 5

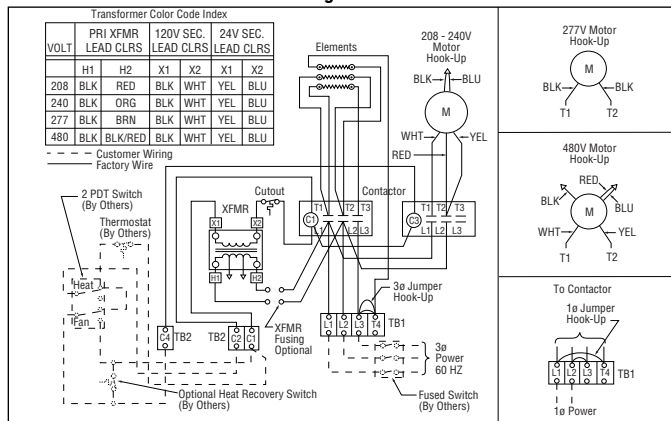


Figure 6

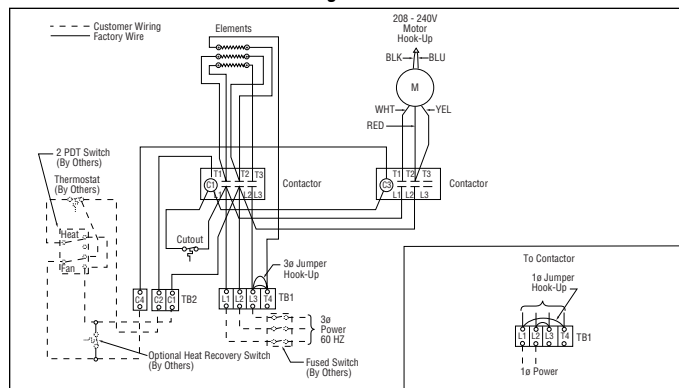


Figure 7

**Note:** For 208-240V motor wiring, red and yellow motor wires to be connected at T2 terminal.

### MOTOR LUBRICATION

Motors in VUH-C-05 through VUH-C-10 have sleeve bearings which are factory lubricated. Relubricate annually, if necessary, with No. 10 non-detergent oil.

**Note:** All fan motors are totally enclosed and internally thermal overload protected.

# RENEWAL PARTS IDENTIFICATION

## MANUFACTURER PART NUMBER BREAKDOWN (LOCATED ON UNIT NAMEPLATE)

V U H - C    □ □ - □ □    □ □ - □ □

### Common Parts

| Diagram Item No. | Description     | Part No.       |
|------------------|-----------------|----------------|
| 5                | Grille          | 134-130456-001 |
| 6                | Overheat Cutout | 300-024283-003 |

### Elements, Motor and Fan

| Code Nos. | kW  | Volts | Phase | Element Part No. (Item No. 1) | Motor Part No. (Item No. 2) | Fan Part No. (Item No. 4) |
|-----------|-----|-------|-------|-------------------------------|-----------------------------|---------------------------|
| 05-81     | 5   | 208   | 1     | 118-130480-001 (3)            | 193-057699-001              | 112-130398-001            |
| 05-83     |     |       | 3     |                               |                             |                           |
| 05-21     |     | 240   | 1     | 118-130480-003 (3)            |                             |                           |
| 05-23     |     |       | 3     |                               |                             |                           |
| 05-71     |     | 277   | 1     | 118-130480-004 (3)            | 193-057700-001              |                           |
| 05-43     |     | 480   | 3     | 118-130480-005 (3)            | 193-057699-001              |                           |
| 07-81     | 7.5 | 208   | 1     | 118-130480-002 (3)            | 193-057699-001              | 112-130398-002            |
| 07-83     |     |       | 3     |                               |                             |                           |
| 07-21     |     | 240   | 1     | 118-130480-017 (3)            |                             |                           |
| 07-23     |     |       | 3     |                               |                             |                           |
| 07-71     |     | 277   | 1     | 118-130480-007 (3)            | 193-057700-001              |                           |
| 07-43     |     | 480   | 3     | 118-130480-008 (3)            | 193-057699-001              |                           |
| 10-81     | 9.8 | 208   | 1     | 118-130480-009 (3)            | 193-057699-001              | 112-130398-003            |
| 10-83     |     |       | 3     |                               |                             |                           |
| 10-21     |     | 240   | 1     | 118-130480-002 (3)            |                             |                           |
| 10-23     |     |       | 3     |                               |                             |                           |
| 10-71     |     | 277   | 1     | 118-130480-006 (3)            | 193-057700-001              |                           |
| 10-43     |     | 480   | 3     | 118-130480-010 (3)            | 193-057699-001              |                           |

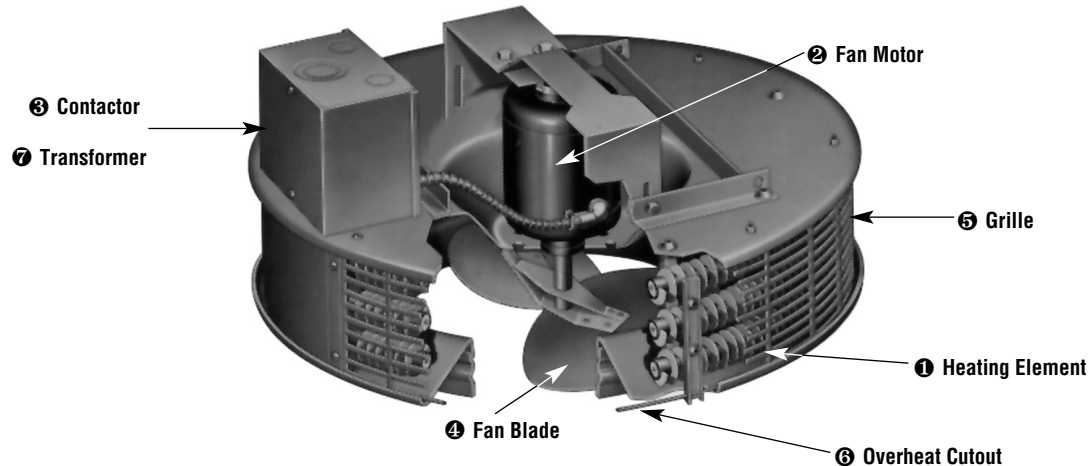
### Controls

| Code Nos. | Description                    | Part Number    | Dia. Item No. | Wiring Dia. Figure | Wiring Diagram Part No. |
|-----------|--------------------------------|----------------|---------------|--------------------|-------------------------|
| 30-00     | Contacteur-24V Coil (30A)      | 072-303180-001 | 3             |                    |                         |
|           | Contacteur-24V Coil (50A)      | 072-303180-002 | 3             | 3                  | 170-057688-001          |
|           | Transformer                    | 315-304252-002 | 7             |                    |                         |
| 31-00     | Contacteur-24V Coil (30A)      | 072-303180-001 | 3             |                    |                         |
|           | Contacteur-24V Coil (50A)      | 072-303180-002 | 3             | 4                  | 170-057688-002          |
| 32-00     | Contacteur-120V Coil (30A)     | 072-303180-007 | 3             |                    |                         |
|           | Contacteur-120V Coil (50A)     | 072-303180-008 | 3             | 3                  | 170-057688-001          |
|           | Transformer                    | 315-304252-001 | 7             |                    |                         |
| 32-45     | Contacteur-120V Coil (30A)     | 072-303180-007 | 3             |                    |                         |
|           | Contacteur-120V Coil (50A)     | 072-303180-008 | 3             | 6                  | 170-057688-004          |
|           | Transformer                    | 315-304252-001 | 7             |                    |                         |
| 33-00     | Contacteur-120V Coil (30A)     | 072-303180-007 | 3             |                    |                         |
|           | Contacteur-120V Coil (50A)     | 072-303180-008 | 3             | 4                  | 170-057688-002          |
| 34-00     | Contacteur-208/240V Coil (30A) | 072-303180-013 | 3             |                    |                         |
|           | Contacteur-208/240V Coil (50A) | 072-303180-014 | 3             | 5                  | 170-057688-003          |
| 34-45     | Contacteur-208/240V Coil (30A) | 072-303180-013 | 3             |                    |                         |
|           | Contacteur-208/240V Coil (50A) | 072-303180-014 | 3             | 7                  | 170-057688-005          |

### Optional Transformer Fusing

| Fuse Type | Part Number        |
|-----------|--------------------|
| KTK-3     | 128-047763-007 (2) |

NOTES: Number in parenthesis ( ) indicates quantity required of that part.



### Limited Warranty:

Please refer to the Chromalox limited warranty applicable to this product at <http://www.chromalox.com/customer-service/policies/termsosale.aspx>.

**Chromalox®**  
PRECISION HEAT AND CONTROL

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